

## Mandatory Seatbelt Law Support and Opposition in New England—a Survey

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### Synopsis .....

*Less than one-fifth of the U.S. population consistently wears automobile seatbelts. Automatic seatbelts or air bags will be required in all new cars,*

*unless States whose total population equals two-thirds of the nation's adopt mandatory seatbelt use laws by 1989, according to the U.S. Department of Transportation. In July 1984, New York State passed the first mandatory seatbelt law in the nation, followed by New Jersey, Illinois, Missouri, Michigan, and New Mexico.*

*A telephone survey of 2,982 randomly selected drivers examined belt use and support for mandatory belt use laws in the six New England States. Drivers with little education and low income, younger drivers, and drivers who drove after heavy drinking or marijuana use, or both, were least likely to wear seatbelts. Beliefs that seatbelts are not effective in reducing injury risk and are uncomfortable were more common among those not wearing belts.*

*Sixty percent of drivers favored a mandatory seatbelt use law. The most important predictors of opposition to a belt use law were beliefs that seatbelts are ineffective, inconvenient, and uncomfortable. Opposition was also more likely among persons who reported that they drove after marijuana use, or heavy drinking, or both, drove more miles per year, exhibited a low frequency of seatbelt use, and perceived a low probability of personal crash involvement.*

**A**CCIDENTAL INJURY IS THE FOURTH LEADING CAUSE of death after heart disease, cancer, and stroke. Motor vehicle accidents are the leading cause of all deaths for people 1 to 34 years of age (1). They are also the leading cause of death from external trauma (2) and a major contributor to job-related deaths (3). With respect to severe injuries, motor vehicle accidents account for the majority of new cases of paraplegia and quadriplegia, facial lacerations and fractures, and they contribute prominently to the numbers of new cases of epilepsy and brain damage (4).

Despite the abundance of scientific evidence which indicates that if all automobile occupants wore seatbelts, injuries and fatalities in crashes would decline by 50 percent (5), the vast majority of drivers and passengers in the United States continually choose not to wear them.

In an attempt to prevent resulting deaths and injuries, advertising campaigns, public information programs (6,7), and use instruction as part of driver education programs (8) have been employed to persuade people to use seatbelts. Despite these efforts, most studies based on observations in the United

*'... little education and low income levels, youth, unmarried status, and a habit of two or more drinks per day were associated with lower mean levels of reported seatbelt use.'*

States report usage rates of approximately 12 percent (9), while some recent surveys relying on self-reported use range from 18 percent (10) to 28 percent (5).

More than 30 countries have passed mandatory seatbelt use laws. Analyses in Australia, Belgium, France, New Zealand, Norway, Denmark, and Great Britain have found that belt use increased from 25 to 36 percent to at least 70 percent after the law was enacted, and deaths of vehicle occupants declined an estimated 15 to 30 percent (5,11). However, it is possible that factors other than the belt use laws may have contributed to the declines observed in occupant deaths. These analyses did not include comparison of jurisdictions that did not pass laws where such factors could have been identified. In a more rigorous study, an 11 percent drop in occupant deaths was identified after passage of belt laws in the Canadian Provinces of Ontario, Quebec, British Columbia, and Saskatchewan as opposed to Canadian Provinces that did not pass mandatory seatbelt laws (12).

In July 1984, after 15 years of national debate, Transportation Secretary Elizabeth Dole implemented a Federal rule requiring that automobile manufacturers gradually phase in "automatic crash protection" in all new cars beginning in 1986. This Federal Motor Vehicle Safety Standard requires protection that would prevent death of front seat occupants in frontal crashes at speeds up to 30 miles per hour. The installation of either air bags or automatic seatbelts are the most likely way this could be achieved. However, this ruling will be rescinded if State legislatures representing two-thirds of the nation's population enact mandatory seatbelt laws by April 1989. New York, Illinois, New Jersey, Missouri, Michigan, and New Mexico have all passed mandatory seatbelt laws, and bills are pending in several other States.

Given this provision in Dole's Federal rule, it is important to assess specific aspects about seatbelt use that might influence whether other States will pass mandatory belt laws and whether the public

will comply with such laws if passed. In this study, we will first identify salient characteristics of persons who do not wear seatbelts in the absence of a mandatory seatbelt law and explore reasons why; and second, we will examine the characteristics of those who oppose mandatory seatbelt legislation in relation to those who support it.

## Methods

The data derive from surveys collected in September 1983 as part of a study assessing the impact of Maine's 1981 drunk driving law. In an anonymous telephone survey, adults 18 years and older in each of the New England States were interviewed. One adult was randomly selected from each household (13). Response rates for each of the New England States were Connecticut, 78 percent (507); Maine, 68 percent (1,076); Massachusetts, 73 percent (1,008); New Hampshire, 80 percent (250); Rhode Island, 77 percent (250); and Vermont, 75 percent (249). The sampling scheme, which determined the total number of interviews to be taken from each State, was not intended to represent the relative size of the State's population. Therefore, when all the States were combined into one geographic unit, the proper proportions were reestablished by using a weighting procedure. The analyses, therefore, are based on a weighted *N* of 2,982 respondents who reported driving within the past year.

Besides questions about drinking and driving behaviors, perceptions of drunk driving laws, and demographics, respondents were also extensively queried about their seatbelt use and attitudes about seatbelt efficacy. Seatbelt use in our survey was ascertained by asking respondents what percent of the time (0-100 percent) they wore a seatbelt while driving during the previous year. If respondents reported any seatbelt use within the previous year, they were further asked about use under specific driving conditions. Finally, preference for a mandatory seatbelt law was ascertained by asking respondents: How do you feel about a law that would require mandatory use of seatbelts by all drivers? Would you strongly favor, somewhat favor, somewhat oppose, or strongly oppose such a law?

The analyses proceeded in two stages. First, persons who reported wearing seatbelts were compared to those who did not, on personal demographics and driving characteristics, as well as attitudes toward seatbelts. Drivers who opposed a belt use law were also compared on those same factors to drivers who favored a belt use law. Second, logistic regression analyses were conducted,

Table 1. Mean percent of time New England drivers reported using a seat belt the past month

Characteristics	Number of persons <sup>1</sup>	Mean percent of time belt used	P-value <sup>2</sup>	Characteristics	Number of persons <sup>1</sup>	Mean percent of time belt used	P-value <sup>2</sup>
<i>Demographics</i>				<i>Type of car—continued:</i>			
Education:				Compact	658	32	} .....<.0001
High school or less	1,411	17	} .....<.0001	Subcompact	235	33	
Some college	728	23		Make of car:			
College or more	799	38		Domestic	2,311	21	} .....<.0001
Income:			Foreign	631	37		
Less than \$15,000	729	19	Year of car:				
\$15-25,000	817	21	1974 or earlier	421	18	} .....<.0001	
\$25-30,000	397	27	1975-1979	1,351	23		
\$30,000 or more	898	31	1980 or newer	1,169	29		
Age:			Condition of car:				
18-19 years	136	14	Good	2,680	25	} .....<.02	
20-25 years	445	18	Fair	227	20		
26-35 years	700	31	Poor	39	11		
36-59 years	1,222	23	<i>Driving behaviors</i>				
60 years or older	449	24	<i>Any accidents requiring physician's care:</i>				
Marital status:			None	2,918	24	} .....<.02	
Never married	694	21	Yes	36	39		
Married	1,841	26	<i>Drove after drinking 5 or more drinks in past month:</i>				
Separated, divorced, widowed	402	23	Never	2,718	26	} .....<.0001	
Average daily alcohol consumption:			Yes	232	13		
None	758	25	<i>Drove after marijuana use in past month:</i>				
Less than 2 drinks a day	1,805	26	Never	2,771	25	} .....<.0002	
2 or more drinks a day	381	15	Yes	181	14		
<i>Driving practices</i>				<i>Drove after drinking and marijuana in past month:</i>			
Miles drove past year:			Never	2,807	25	} .....<.002	
1-10,000	1,559	21	Yes	116	14		
10,001-20,000	947	27	<i>Type of car:</i>				
20,001 or more	449	31	Truck-van	343	20	} .....<.0001	
Type of car:			Full size	988	20		
Truck-van	343	20	Intermediate	731	24		
Full size	988	20					
Intermediate	731	24					

<sup>1</sup> Sample does not always add up to total of 2,982 because of missing values.  
<sup>2</sup> Analysis of variance.

using preference for a seatbelt law as the dichotomous (favor-oppose) dependent variable. These models assessed which of the demographic characteristics, driving behaviors, or attitudinal factors would independently predict opposition to a belt use law after all others were controlled analytically.

**Results**

**Seatbelt use in New England.** Fifty-nine percent of the sample reported never using their seatbelts in the past year, and 13 percent reported using them all of the time. Those reporting occasional use within the last month (28 percent) were asked under what conditions they used a seatbelt. Fourteen percent said they used seatbelts regularly when driving to

work, 9 percent when doing an errand in the neighborhood, 48 percent when taking a vacation trip, 23 percent when driving at night, 35 percent when driving in inclement weather, and 22 percent when driving after drinking.

Table 1 shows the mean percent of time that various subgroups of New England drivers reported using their seatbelts. With seatbelt use as a continuous dependent variable, one-way analysis of variance was used to compare the mean use rates in each of the groups. To highlight some findings presented in table 1, little education and low income levels, youth, unmarried status, and a habit of two or more drinks per day were associated with lower mean levels of reported seatbelt use. Infrequent seatbelt use was also associated with those who

Table 2. Attitudes about seat belts and mean percent of time seat belts were used in the past month (percentages)

Question	Response		Used belts		P-value <sup>1</sup>
	Very true	Somewhat	A little	Not at all	
It is better to be thrown clear of the car if you are in a serious accident .	14	15	25	32	<.0001
Seat belts are inconvenient to use . . . . .	10	16	27	44	<.0001
It is dangerous to drive without a seat belt . . . . .	36	12	7	13	<.0001
It is easy to forget to put on a seat belt . . . . .	14	32	44	42	<.0001
Seat belts are uncomfortable to use . . . . .	7	21	31	47	<.0001
A person who is wearing a seat belt is less likely to be injured in a serious accident than a person who does not wear one . . . . .	31	10	7	11	<.0001
Children under the age of 4 years old should always be fastened into a car seat or seat belt . . . . .	25	13	21	21	<.16

<sup>1</sup> Analysis of variance

drove older and larger cars, who drove fewer miles per year, and who drove more often after heavy drinking and after marijuana use.

In addition, those drivers reporting a lower rate of seatbelt use did not perceive the likelihood of being involved in a crash any differently than drivers reporting a higher rate of seatbelt use. Finally, there was no association between seatbelt use and participation in a driver's education course, having been stopped by the police for a traffic violation, or having been involved in a car crash the past year.

**Attitudes about seatbelt efficacy.** Studies examining drivers' attitudes about seatbelts found the frequent excuses for nonuse to be inconvenience, discomfort, and some doubt that belts actually can protect vehicle occupants in crashes (5,10,14,15). Table 2 shows the statements that were asked in our survey to determine attitudes about seatbelts.

Using one-way analysis of variance, the mean percent of time a seatbelt was used during the past year was compared across response categories. Consistently, negative attitudes about seatbelts were found to be highly associated with low seatbelt use. Those drivers reporting a lower rate of seatbelt use were more likely than those reporting a higher rate to believe that it is better to be thrown clear of the car if involved in a serious accident, that seatbelts are inconvenient, uncomfortable, and easy to forget to put on, that it is not dangerous to drive without a seatbelt, and that a person who is not wearing a belt is no more likely to be injured in an accident than one who is wearing a belt.

The belief that children under 4 years old should be fastened in a car seat or belt was not significantly associated with seatbelt use of the respondent ( $P < .16$ ). A closer look at the distribution of responses to this statement revealed little variation: an overwhelming 97 percent of those surveyed believed this statement to be very true.

**Who opposes a mandatory use law?** Sixty percent of all drivers in our sample favored mandatory belt use laws: 28 percent said they strongly favored such a law, 32 percent somewhat favored, 21 percent somewhat opposed, and 19 percent strongly opposed such a law. In a univariate analysis comparing the proportion of drivers who opposed a seatbelt use law to the proportion of those who favored one (table 3), we found drivers opposed to a belt use law had less education, reported drinking more alcohol, drove larger cars in poorer condition, drove more miles, drove more often or after heavy drinking, or after marijuana use, or both, were more likely to have received a ticket for a moving violation, and were more likely to report using their seatbelts infrequently.

Efforts to pass mandatory seatbelt laws will most certainly be accompanied by campaigns designed to heighten beliefs in the benefits and convenience of seatbelt use. Further, if belt use laws are passed, awareness of the law itself will probably not be sufficient in many instances to insure compliance. It is therefore necessary to understand which factors, if any, need to be addressed by public education strategies.

In an effort to establish which of those personal characteristics, driving practices, or attitudinal factors best predicted opposition to a seatbelt law, logistic regression analysis was performed using preference for a seatbelt law as the dichotomous dependent variable (favor = 0, oppose = 1). The independent variables included in the logistic regression model were those attitudinal factors that, by univariate analyses, were significantly ( $P < .05$ ) associated with usage as shown in table 2, and demographic and driving characteristics associated with preference for a seatbelt law as shown in table 3. (Car size and foreign or domestic make were so highly interrelated that only car size was included in the regression model.)

This analysis revealed that attitudes expressing a negative view toward seatbelts and driving practices were better predictors of opposition to a seatbelt law than demographic characteristics (age, education, income, marital status, or gender of respondent, see table 4).

After controlling analytically for demographic characteristics and driving practices associated both with seatbelt use and belt law preference, the odds ratios showed that people who believed that it is not dangerous to drive without a seatbelt were five times more likely to oppose a seatbelt law. Those who believed that a person who is not wearing a belt is no more likely to be injured in an accident than one who is wearing a belt were four times more likely to oppose a seatbelt law. People who believed that seatbelts are inconvenient, uncomfortable, and easy to forget were also significantly more likely to oppose a seatbelt law. Drivers who reported lower levels of seatbelt use, and those who reported driving after using marijuana in the previous month were twice as likely to oppose a seatbelt law, and those who reported driving after drinking five or more drinks were one and a half times more likely to oppose a seatbelt law. Those who drove more miles per year, and who perceived the probability of becoming personally involved in a crash as low were also significantly more likely to oppose a seatbelt law.

## Discussion

In interpreting the results of this study, it should be noted that self-reports in interviews about seatbelt use have been criticized for producing overestimates of use. Waller and Barry (16) compared observed seatbelt use with self-reports in a mailed questionnaire sent to observed drivers whose belt use had been observed and recorded. They found that only 46 percent of the respondents who reported always wearing their belts in rural areas were actually observed wearing them on out-of-town roads, and 77 percent of those who reported always using their belts in local travel had in fact been observed wearing them in town. This prompted them to conclude that the social desirability of reported use may invite overestimates of belt use behavior by respondents.

Fhaner and Hane (17), however, compared self-reported belt use among drivers who were told that they had been observed with drivers who had not been told this information and found no differences in self-reported use between the two groups.

Discrepancies also exist among the purely observational studies. In an observational study in 19

major cities conducted during November 1980 and October 1982 (18), seatbelt use in the New England region, represented by Boston and Providence, was 10.9 percent. Yet in a study conducted by the Passenger Safety Resource Center of the Massa-

Table 3. A comparison of demographic and driving characteristics of drivers who oppose a mandatory seat belt law

Characteristics	Percent opposing	P-value <sup>1</sup>
<i>Demographics</i>		
Education:		
High school or less	44	} ..... <.0001
Some college	34	
College or more	38	
Average daily alcohol consumption:		
None	36	} ..... <.0001
Less than 2 drinks a day	37	
2 drinks or more a day	57	
<i>Driving practices</i>		
Type of car:		
Truck-van	55	} ..... <.0001
Full size	39	
Intermediate	36	
Compact-subcompact	37	
Miles drove past year:		
1-10,000	35	} ..... <.0001
10,001-20,000	42	
20,001 or more	49	
Condition of car:		
Good	39	} ..... <.002
Fair	39	
Poor	67	
<i>Driving behaviors</i>		
Number of tickets for moving violations:		
None	39	} ..... <.0001
One	44	
Two or more	70	
Number of times drove after drinking 5 or more drinks in past month:		
Never	37	} ..... <.0001
One or more	64	
Number of times drove after using marijuana in past month:		
Never	38	} ..... <.0001
One or more	60	
Number of times drove after drinking and marijuana in past month:		
Never	39	} ..... <.0001
One or more	58	
Perceived probability of being in crash:		
High	41	} ..... <.002
Moderate	36	
Low	40	
No chance at all	51	
Percent time used seat belt in past year:		
Never	51	} ..... <.0001
50 or less	30	
51-89	23	
90 or more	16	

<sup>1</sup>  $\chi^2$

Table 4. Logistic regression analysis: independent variables significantly predicting opposition to a mandatory seat belt use law

Independent variables	Odds ratio	95 percent confidence interval	P-value
<b>Attitudes:</b>			
It is not dangerous to drive without a belt . . . . .	5.21	3.68, 7.37	<.0001
No less injury received if belt used . . . . .	3.86	3.58, 6.12	<.0001
Seat belts are inconvenient . . . . .	2.53	1.92, 3.37	<.0001
Seat belts are easy to forget . . . . .	1.75	1.36, 2.25	<.0001
Seat belts are uncomfortable . . . . .	1.46	1.11, 1.93	<.0054
<b>Driving practices:</b>			
Infrequent seat belt use . . . . .	2.23	1.62, 3.06	<.0001
Drove more miles past year . . . . .	2.58	1.92, 3.49	<.0001
Drove after marijuana use . . . . .	1.86	1.22, 2.83	<.0034
Drove after 5 or more drinks . . . . .	1.58	1.08, 2.32	<.0143
Low probability of personal crash . . . . .	1.43	1.00, 1.74	<.0451

chusetts Department of Public Health in 1983 (at 117 sites around the State), observed use was found to be 28 percent. These discrepancies in use rates may exist because of differences in sampling procedures, field protocols, observer training, or data collection methods. Our interview data collected concurrently with these observational studies in New England yielded rates of reported belt use that fall between the rates recorded in the aforementioned studies. Thirteen percent reported always using their seatbelts, while 28 percent reported occasional use at one time or another during the past year.

It is also possible that people who admit to one socially undesirable behavior, for example, not using seatbelts, may be more willing to admit to others, such as drinking, driving while intoxicated, and accruing traffic violations. This may have contributed in part to associations observed in this study.

Despite these limitations, our data indicate that while only a minority of the public wear belts, a majority support a mandatory belt use law. However, the minority who oppose this legislation contain some of the drivers at greatest risk of crash involvement; for example, those who drive while intoxicated. If the opponents of such a law do not obey it, their actions may dilute its beneficial effects. Though occupant deaths could be reduced by 50 percent if all occupants wore belts or child restraints, mandatory belt use laws have typically not achieved such large reductions in occupant deaths.

In other countries where seatbelt use is a legal requirement, dramatic increases in seatbelt use have been seen immediately following enactment of such a law. For example, in Ontario, Canada, Mackillop found that seatbelt use increased from 17 percent prior to the law to 77 percent after the law went into effect in January 1976 (19). However, the overall use rate has stabilized at about 49 percent during the past 3 years (20).

Opposition to mandatory seatbelt laws and failure to obey them could occur in the United States for several reasons. First, despite the many efforts of public officials to alter the public's knowledge about seatbelt effectiveness, it appears from these analyses that many common myths about seatbelts have not been dispelled. These myths persist despite the many advances in technology that have made seatbelts more comfortable and easier to use, and our data suggest that they may affect whether or not drivers oppose a mandatory belt use law.

Secondly, though not assessed in this study, the strictness of the penalty levied for noncompliance might also affect the level of support for, and compliance with such laws. The penalty, that is to say, the fine, must be substantial enough to compel drivers to comply, but not so severe as to make enforcement difficult. Of the six States that have passed mandatory belt use laws, fines range from \$10 in Missouri to \$50 in New York, whereas the fine in the United Kingdom is 100 pounds, or about \$120.

Thirdly, the intensity of policy enforcement may influence whether drivers will support the law and subsequently comply with it. In Ottawa, observed seatbelt use increased from 58 percent to 80 percent during a program designed to step up police enforcement of the seatbelt legislation, whereas belt use in the control city did not increase from the baseline level. Seatbelt laws may need to be accompanied by sustained enforcement efforts, stiff penalties, or measures to alter public perceptions about the efficacy and convenience of seatbelt use. Initial benefits are unlikely to be sustained fully over the long run if laws are passed and optimal educational and enforcement efforts are not identified to accompany those laws.

It is noteworthy that the U.S. Department of Transportation ruling did not establish requirements concerning the *level* of compliance or actual belt use needed before abandoning the automatic crash protection regulation. The Department ruling has created a conflict between the advocates of compulsory seatbelt use laws and those who believe that belt use laws should complement, rather than be an

alternative to, automatic restraints such as air bags. On the one hand, even the most conservative estimates of the beneficial effects of seatbelt laws indicate an 11 percent decline in occupant deaths following such laws (21). If such a decline were observed throughout the United States, 4,000 to 4,500 fewer deaths would occur annually. That number approaches the initial fatal crash decline attributed to the 55 mile-per-hour speed limit (21).

On the other hand, air bags offer protection to unbelted occupants and added protection to belted drivers and passengers, and air bags are most effective in frontal crashes. Forty-five to 50 percent of occupants killed nationwide in 1982 were involved in frontal crashes (22).

If mandatory seat belt legislation is enacted and the predicted compliance is not achieved, it will be ironic that the implementation of automatic crash protection will again be delayed and its potentially lifesaving effects not attained for yet another decade.

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## LETTERS *continued*

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### Correction

There is an error in my published manuscript "Severe Attacks by Dogs: Characteristics of the Dogs, the Victims, and the Attack Setting," *Public Health Reports*, January-February 1985, Vol. 100, No. 1, pp. 55-61. The second paragraph of the "Results" section should read: "Five attacks were by American Staffordshire terriers or American pit bull terriers; . . ." *not* "Five attacks were by American Staffordshire or Staffordshire bull terriers; . . ." I would appreciate your correction of my error.

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